

REMARKS

The interview graciously granted by the examiner, and receipt of the Official Action of November 3, 2006, are acknowledged. The claims in the application are now claims 3, 5, 8, 10, 12 and 19, and these claims are believed to be in condition for formal allowance, based on applicants' understanding of what was agreed during the aforementioned interview. Accordingly, favorable consideration and early formal allowance are respectfully urged.

During the aforementioned interview, claims 3 and 4 were discussed. Examiner Halpern indicated that if the features of claim 4 were added to claim 3, then all the claims not withdrawn from consideration would be allowable. This has now been done above, and indeed the withdrawn claims have also been deleted without prejudice to applicants' rights to pursue such claims in one or more divisional applications, without any penalty whatsoever, applicants in such as case relying on §121, 120 and 119.

To complete the record, applicants now respond to the rejections appearing in the aforementioned Office Action of November 3, 2006.

Claims 3, 4, 8 and 15 have been rejected as anticipated by Endo JP-2-235320 (Endo). This rejection is respectfully traversed.

The method as called for in claim 3 provides a method for making a polarizable electrode for an electric double layer capacitor comprising a mixing step including a primary mixing in which a carbonaceous powder and a conducting assistant are mixed into a primary mixture, and a secondary mixing in which a binder and a binder assistant are added to the primary mixture. This makes it possible to mix the carbonaceous powder, the conductive assistant, the binder and the binder assistant into a material mixture that is kneaded into a clayey forming material. This material is formed into a fine grain and thereafter into a sheet of forming material. The forming material is rolled into a thinner sheet shape.

In contrast thereto, Endo discloses a method comprising pulverizing active carbon fibers and passing the pulverized carbon fibers through a net, thereby obtaining active carbon powder. The active carbon powder is then mixed with liquid lubricant such as propylene glycol by a spiral mixer. Subsequently, an aqueous dispersion of polytetrafluoroethylene (PTFE) is added to the mixture to be kneaded into a rubbery viscous mixture. The viscous mixture

is rolled by rolls, thereby obtaining a sheet-shaped preformed compact.

The method as claimed herein primarily differs from Endo in the material mixing sequence. More specifically, in Endo, the liquid lubricant is added to and mixed with the active carbon fibers at one time. Immediately thereafter, the manufacturing sequence proceeds to the kneading step so that the PTFE aqueous dispersion is added to the mixture of the active carbon fibers and the liquid lubricant. When the mixing step is carried out only once, the PTFE aqueous dispersion is kneaded thereby to be rendered viscous, although it is not completely mixed with the active carbon powder and liquid lubricant. As a result the kneaded material contains components in which the effect of the PTFE aqueous dispersion is not a sufficient binder for the mixture. Accordingly, the kneaded material tends to break or crack when rolled into a sheet shape.

U.S. Patent No. 5,277,729 is the U.S. equivalent of Endo. At column 3, lines 1-7, Endo states that the starting step is one of performing a kneaded substance of fine carbon powder, a polymer resin containing fluorine, and a liquid lubricant. In Example 1, beginning at column 7, line 60, Endo discloses mixing propylene glycol with activated carbon powder. These materials were mixed with each other by a

spiral mixer. Then 5 parts by weight of aqueous PTFE dispersion was added to and kneaded with the mixture. There is no second mixing step prior to kneading.

In the method as claimed, however, the primary mixing is conducted in which carbonaceous powder and conductive assistant are mixed into a primary mixture. A binder, corresponding to the PTFE aqueous dispersion in Endo, and a binder assistant are added to the primary mixture, and a secondary mixing is then carried out while the binder absorbs the binder assistant, thereby swelling. The binder is thus evenly mixed with the mixture of carbonaceous powder and conductive assistant in the secondary mixing. Thus, in the secondary mixing, the binder, which has already absorbed the binder assistant, is uniformly mixed with the mixture of the carbonaceous powder and conductive assistant.

It is not until the secondary mixing step is carried out that the mixture is kneaded. As a result, the entire mixture is rendered uniformly viscous into a clayey state, so that the kneaded material is completely affected by the aqueous PTFE dispersion. Consequently, the material does not crack during rolling.

The method as called for in claim 3 provides a method for making a polarizable electrode for an electric double layer capacitor comprising a mixing step including a

primary mixing in which a carbonaceous powder and a conducting assistant are mixed into a primary mixture, and a secondary mixing in which a binder and a binder assistant are added to the primary mixture. This makes it possible to mix the carbonaceous powder, the conductive assistant, the binder and the binder assistant into a material mixture that is kneaded into a clayey forming material. This material is formed into a fine grain and thereafter into a sheet of forming material. The forming material is rolled into a thinner sheet shape.

In contrast, Endo discloses a method comprising pulverizing active carbon fibers and passing the pulverized carbon fibers through a net, thereby obtaining active carbon powder. The active carbon powder is then mixed with liquid lubricant such as propylene glycol by a spiral mixer. Subsequently, an aqueous dispersion of polytetrafluoroethylene (PTFE) is added to the mixture to be kneaded into a rubbery viscous mixture. The viscous mixture is rolled by rolls, thereby obtaining a sheet-shaped preformed compact.

Therefore, claim 3 (even without the features of claim 4 as incorporated therein, above) defines novel subject matter over Endo.

Withdrawal of the rejection is in order and is respectfully requested.

Claims 5 and 6 were rejected as obvious under §103 from Endo. This rejection is respectfully traversed.

Claim 5 has been amended, and is now believed to be consistent with claim 4 as incorporated into claim 3. As claim 3 defines patentable subject matter over Endo, it follows that claim 5 also defines patentable subject matter over Endo.

Withdrawal of the rejection is in order and is respectfully requested.

Claims 10, 12, 13, 17, 19 and 21 have been rejected under §103 as obvious from Endo in view of Tomohiro, JP 2000-277391 (Tomohiro). This rejection is respectfully traversed.

Endo has been discussed above, and its deficiencies pointed out. Tomohiro does not make up for these deficiencies. Claim 3 as amended above is understood to be in condition for allowance, and the remaining claims 10, 12 and 19 ultimately depend from and incorporate amended claim 3, and therefore they also should now be in condition for formal allowance.

Tomohiro discloses a process including adding a fluorine containing resin and forming assistant to fine carbon powder, and then kneading the materials. There is no mixing step carried out before the kneading step. Endo, as noted

above, only discloses one mixing step prior to the kneading step.

In the presently claimed method, the primary mixing is conducted in which carbonaceous powder and conductive assistant are mixed into a primary mixture. The binder is then added to the primary mixture and a secondary mixing is conducted so that the carbonaceous powder, the conductive assistant, the binder and the binder assistant are completely mixed together. It is only after all components are completely mixed that the kneading step is conducted. As a result, the entire material is rendered uniformly viscous into a clayey state, so that the kneaded material contains no areas in which the action of the aqueous PTFE dispersion as a binder is insufficient. Consequently, this prevents the formation of cracks or the like during the rolling step. There is nothing in Tomohiro that even suggests adding a second mixing step to the Endo process.

Withdrawal of the rejection is in order and is respectfully requested.

The Office Action indicates that the amendment to the specification has not been accepted because it does not show the added material by underlining. Applicants believe that underlining is inappropriate when an entire paragraph is cancelled and replaced by a new paragraph. This is what

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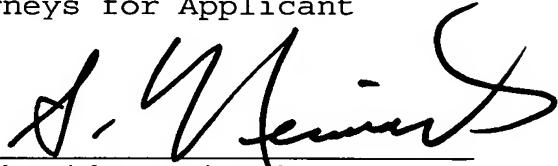
applicants have done. When a new paragraph is inserted, it is not to be underlined. Regardless, applicants request the examiner to make the appropriate amendment to the specification by examiner's amendment, and would appreciate such action.

Applicants believe that all issues raised in the Official Action have been addressed above in a manner that should lead to patentability of the present application. Favorable consideration and early formal allowance are respectfully requested.

Respectfully submitted,

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